Power or Plenty
How Do International Trade Institutions Affect Economic Sanctions?

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Does the dramatic rise of the number of preferential trade agreements (PTAs) world-wide make economic sanctions more likely through increasing the leverage of the powerful and pitting states against each other in competition (power) or less likely through increasing the benefits of trade, resolving disputes, and promoting like-minded communities (plenty)? The authors offer the first systematic test of these pro-positions, testing hypotheses on sanctions onset using a data set of episodes from 1947 through 2000. In favor of the plenty argument, increases in bilateral trade do decrease sanctioning behavior; in favor of the power argument, an increase in the potential sanctioner's GDP or centrality in the network of all PTAs make sanctioning much more likely. However, mutual membership in PTAs has no direct effect on the propensity of states to sanction each other.

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T he number of preferential trade agreements (PTAs) between states is increasing rapidly, as is the volume of debate over the effects they have on international politics. Some scholars argue that PTAs and the World Trade Organization

(WTO) prevent wars, stop human rights violations, and consolidate democracy (Fernandéz and Portes 1998; Schiff and Winters 1998; Mansfield, Pevehouse, and Bearce 1999; Mansfield and Pevehouse 2000; Powers 2003a, 2004; Pevehouse 2004; Hafner-Burton 2005). For many of the same reasons, PTAs could also prevent economic sanctions, widely recognized to be a ''form of warfare'' (McGee 1998, 7), driven by similar dynamics (Marinov 2003; Drezner 2003). PTAs and economic sanctions are two directly opposing policy options; the first extends commerce, while the second withholds it (Hufbauer 2000). Here, we focus on four reasons they could prevent economic sanctions. First, PTAs create rules specifically prohibiting sanctions; the WTO, under which many PTAs fall, generally prohibits such actions as well. Second, they can help resolve disagreements and overcome collective action problems that would otherwise lead to sanctions. Third, they provide a formal mechanism through which members can potentially increase trade and lengthen the shadow of future trade relations, discouraging actions meant to impose damages on trade partners. Fourth, they can also create a sense of shared identity and trust, which discourages hurting their partners in cooperation by imposing sanctions on them.

Other scholars think differently, arguing that trade institutions could increase sanctioning behavior. At the dyadic level, PTAs can increase direct economic leverage, providing states with greater opportunities to sanction each other. At the institutional level, PTAs provide a forum for collaborating on sanctions with allies while increasing opportunities for adversarial interaction with enemies. At the systemic level, PTAs increase the informal links between states through which collusion on sanctions can occur, and pit states competitively against each other. In this view, PTAs are vehicles for power politics that exacerbate conflict by creating asymmetries in power that are known to cause disagreements between states (Gilpin 1987; Hirschman 1945). Edward Mansfield (1994) summarizes the viewpoint at the dyadic and institutional levels succinctly:

> PTAs are useful venues through which to impose multilateral sanctions. They increase the market power of the sender, provide an institutional forum within which to negotiate the distribution of sanction-related costs, facilitate the linkage of other commercial issues to compliance with the sanctions (thereby ameliorating collective action problems) and increase the interdependence among member states (thereby increasing the costs for each state of being punished for noncompliance in sanctions efforts). These factors enhance the prospects for imposing sanctions that exert the maximum amount of economic damage on a target. (Mansfield 1994, 138)

At the systemic level, international institutions (including trade institutions) form networks among states that are known to shape conflict behavior such as militarized disputes (Dorussen and Ward 2008 [this issue]; Hafner-Burton and Montgomery 2006; Oneal and Russett 1999; Kim and Barnett 2005). States that have formal or informal connections to many other states through many different PTAs

occupy a central position in the PTA network that allows them to negotiate in multiple venues and draw on existing ties to seek support for their actions.[1] Centrality could also make sanctions easier to apply, if not necessarily more effective, for the same reason; sanctions are often applied by multiple countries at the same time, assembled through ad hoc coalitions.[2] The network also divides states into in-groups and out-groups, pitting states against each other in competition for resources by tilting the playing field and putting states in positions to compete for niches.[3] This competition between groups is especially likely to occur in the economic realm, since PTAs exclude nonparties, distorting trade and leaving states out in the cold; some PTAs are highly asymmetrical, such as the postcolonial agreements between the EU and many African countries. Depending on the agreement, it can even increase direct competition between signatories, making economic conflict (including economic sanctions) more likely. States that have a relatively high GDP or trade more with a target country are already known to sanction more (Cox and Drury 2006), while weak-link trade dependence decreases sanctions (Lektzian and Souva 2003), although the institutional-level or systemic-level propositions that PTAs increase sanctions have yet to be tested empirically.

Which is it? Do trade institutions ameliorate or exacerbate economic sanctions? How? We are aware of no empirical study that provides answers. In standing with the theme of this special issue—"International Organizations Count"—we accordingly offer the first systematic test of the proposition that mutual membership in PTAs affects the propensity of member states to sanction each other. We begin with a brief overview of the state of knowledge regarding the onset, duration, and success rates of economic sanctions. We then discuss arguments on both sides in greater detail, specify our hypotheses, and test them on sanctions onset using a data set of sanctions episodes from 1947 through 2000. Following other scholars, especially Mansfield (1994), Grieco (1997), and Hafner-Burton and Montgomery (2006), we take a systemic approach to this analysis, focusing our attention mainly on macro-level features and processes of the global system, such as the emergent effects of the entire network of PTAs, rather than on the microprocesses that play out in the domestic politics of the policy process, which have been discussed elsewhere.[4]

What We Know about Economic Sanctions

Economic sanctions are a form of political coercion ruled by similar dynamics as war (Marinov 2003; Drezner 2003) but are commonly viewed as a more reasonable alternative to, or companion strategy for, the use of military force (Baldwin 1985; Hufbauer et al. 1990; Pape 1997; Elliott 1998; Bolks and Al-Sowayel 2000).[5] By design, sanctions punish through the manipulation of economic welfare (Nossal 1989); they are "measures in which one country (the initiator) *publicly* suspends a major portion of its trade with another country (the target) to attain *political* objectives," such

as compliance, subversion, deterrence, punishment, and symbolism (Lindsay 1986, 154). We thus explicitly exclude from our empirical analyses sanctions initiated for economic purposes, such as the retaliatory sanctions permitted by some trade institutions for violation of the agreement. The vast majority of research on sanctions accordingly studies their effectiveness, generally understood to be a matter of economic costs relative to political gains (Baldwin 1985; Martin 1992; Drury 1992; Kaempfer and Lowenberg 1999; Lektzian and Souva 2001).

By all accounts, sanctions have a debilitating effect on economic cooperation. Their use represents ''a deadweight loss of utility'' through lost welfare benefits for all governments involved (Pape 1997; Eaton and Engers 1999; Drezner 2003) that mount as sanctions endure (Marinov 2003). Sanctions can affect firms' ability to succeed in a competitive environment, imposing risks for businesses in both initiators and targets (Morrow, Siverson, and Tabares 1998; Lektzian and Souva 2001), with a lingering impact on levels of trade (Hufbauer et al. 1997). Although governments may use them for domestic political reasons (Kaempfer and Lowenberg 1988; Drury 2001; Hiscox n.d.) or for humanitarian reasons (Weiss 1999), economic sanctions can also devastate peoples' lives and national infrastructure through resource deprivation, pressuring target governments to concede. When they are effective, costs or fear of costs imposed by sanctions thus motivate targets to moderate their offending behaviors, and it is consequently believed that sanctions are most likely to succeed when greater costs are imposed or threatened (Dashti-Gibson, Davis, and Radcliff 1997).

The ability of initiators to impose costs on a target through sanctions, however, often depends on international institutions. A persistent assumption of sanctions research has been that multilateral cooperation among initiators is necessary for success (Kaempfer and Lowenberg 1999; Mastanduno 1992; Gilpin 1984; Haass 1998; Martin 1992). Cooperation not only increases costs for target governments by escalating economic coercion but also demonstrates the credibility of an initiator's threat as well as its resolve to endure. Yet evidence shows otherwise: international cooperation on its own is overvalued in determining the effectiveness of economic sanctions, and unilateral sanctions are commonly more successful (Hufbauer et al. 1990). Rather, history shows that multilateral sanctions are most effective in achieving initiators' satisfaction when coordinated within international institutions, which reduce transaction costs of cooperation and provide incentives to commit (Drezner 2000). To the extent that international institutions are believed to matter for economic sanctions, they are important in determining success rather than onset under conditions of multilateralism.

Yet very few people believe that sanctions are always or usually effective; mounting evidence is confounded by substantial methodological debates.[6] The most widely cited study concludes that economic sanctions are successful only one in three times (Hufbauer et al. 1990). Others argue this is an overly optimistic artifact of poor coding and case selection and that sanctions fail in nearly all cases;

they are especially futile in the pursuit of noneconomic goals because states are commonly willing to endure considerable punishment rather than concede to external pressures and may strategically redistribute resources to alleviate damages or shield privileged groups.[7]

It is puzzling, then, why sanctions can and do endure, despite high costs to both the initiator and target and limited apparent success (Bolks and Al-Sowayel 2000). Some argue that the failure of sanctions is due to a selection effect; sanctions are successful as threats but, once implemented, have already failed to change the target's behavior (Drezner 2003). They may, therefore, be carried out only for reputational reasons. Another explanation is that sanctions may be carried out as punishment with no expectation of a behavioral change. They may also be largely symbolic in nature; the United States has repeatedly passed layer upon layer of economic sanctions on North Korea and Iran, despite the lack of trade remaining with the United States to sanction.[8] A substantial fraction (34 of 226) of the cases studied in this article are implemented on targets whose trade with the sanctioner is less than 0.1% of the target's GDP.

Several studies on the duration of sanctions episodes support the notion that interdependence will ameliorate sanctions. Although sanctions onset is more likely when initiators perceive sanctions will be domestically expedient (Dorussen and Mo 2001), democratic states are theoretically more likely to be successful when sanctioning (Hart 2000) and in some studies appear less likely to sanction each other (Lektzian and Souva 2003; Cox and Drury 2006) and quicker to return to presanctions level of trade when they do (Bolks and Al-Sowayel 2000; Lektzian and Souva 2001).[9] Military rivals, by contrast, are no more likely to sanction each other than other states, but once sanctions are initiated, they are more likely to endure among rivals than allies (Marinov 2003). So far, no studies explore whether some of the principal institutions designed to promote market access and mediate competition, PTAs, play a role in preventing economic sanctions or encouraging them.

Why International Trade Institutions Could Prevent Sanctions

PTAs and economic sanctions are policy tools with completely opposite ends; one increases commerce, while the other restricts it. PTAs could prevent economic sanctions between members for at least four reasons: Most forbid the use of sanctions except under narrow conditions; some provide dispute resolution mechanisms; many increase the potential losses from using sanctions; and some promote security communities.

First, most trade institutions have clear provisions against members using politically motivated sanctions to punish each other, and most put a ceiling on the use of economic sanctions when states break trade rules. The WTO formally restricts members from sanctioning other members except in a few instances (article 20) or for certain security reasons (article 21). They can, for instance, take actions necessary

to protect "human, animal or plant life or health" (article 20b) or relating to "the products of prison labour" (article 20e) or necessary for the protection of "essential security interests" (article 21b). By and large, though, most forms of economic sanctions are against international trade law.[10] This means they are also against most PTA laws; international trade law also requires that the provisions of the agreement be applied in the PTAs that its members belong to (article 24). And some PTAs regulate the use of economic sanctions among members even further.[11]

Second, international trade institutions supply the characteristics to resolve disputes and overcome information and commitment problems. They manage the distributional effects of relative gains that can be a barrier to cooperation in international anarchy, and moderate defection (Keohane 1984; Snidal 1991). They reduce conflict between states through legal provisions to adjudicate and arbitrate disputes, diminishing enforcement costs, transaction costs, and uncertainty and facilitating credible commitments (Russett and Oneal 2001). In this respect, PTAs are particularly well suited to the prevention of sanctions: in most cases, they institutionalize procedures for negotiation and early resolution (Mansfield and Pevehouse 2000; Yarborough and Yarborough 1997). Moreover, they regularly offer reciprocal terms of trade between members, signaling reciprocity that can help alleviate sanctions, or other types of conflict, before they happen (Fernandéz 1997; Mansfield and Pevehouse 2000; Grieco 1997; Mastanduno 1991) and decreasing uncertainty about relative disparities in distribution, capabilities, and resolve that provide governments with rational incentives to avoid getting hurt or trying to hurt others (Fearon 1995). Consequently, states sharing memberships in international trade institutions generally should prefer and be able to maintain cooperation and be more successful in avoiding sanctions than other states. Moreover, states sharing memberships in international trade institutions with dispute resolution mechanisms should be more likely to avoid sanctions than states without access to dispute resolution; problems might arise, but they should be solved before sanctions are necessary.

The third argument is the most widely asserted: PTAs promote economic interdependence and thereby increase the opportunity costs of taking costly actions, such as military disputes or economic sanctions, which states should want to minimize. Trade institutions reduce market barriers to exchange among members and secure commitments to follow the rules (Viner 1950; Mansfield 1998; Whalley 1996), which outlaw most kinds of sanctions. Member states accordingly have strong reasons to expect substantial gains from interdependence, now or into the future. From this perspective, these gains produce incentives to avoid sanctioning trade partners in much the same way they might war (Mansfield, Pevehouse, and Bearce 1999; Mansfield and Pevehouse 2000; Powers 2003b, 2004) and human rights abuses (Hafner-Burton 2005). For states that are highly dependent on their trade partners for goods and services, that trade heavily, or that receive or expect to receive substantial foreign investment, sanctions of trade partners often come at a

high price: lost commerce and investment (Fernandéz and Portes 1998). Consequently, as trade gains from institutional membership increase, so do the costs of sanctions among partners; as a result, the probability of sanctions also should diminish.

Finally, trade institutions, like other international institutions, can create a sense of community among nations, as leaders in repeated interactions learn to trust one another and develop mutual respect that can dampen conflicts of all kinds. This might be true for war: international institutions and economic interdependence create a social structure through the establishment of authority, providing a foundation for the building of trust among nations in an anarchic world and the diffusion of the value of cooperation (Angell 1913; Zimmern 1936). It might also be true for sanctions: trade institutions such as the European Community can merge the interests of age-old economic and military rivals by establishing a community of states and peoples long divided (Wallace 1994). This sense of community among states can and has helped resolve conflicts through the legitimation of norms that facilitate cooperation and create common interests in reducing trade barriers (Oneal and Russett 1999; Russett and Oneal 2001), generating bonds of trust between potential competitors and reducing problems of misperception.[12] Consequently, states that have broadly similar patterns of trade institution membership may be more likely to see each other as belonging to a common community and therefore will be less likely to sanction each other.

Why International Trade Institutions Could Encourage Sanctions

PTAs could also bring on economic sanctions between members: WTO rules against sanctioning are weakly enforced, especially when it comes to PTAs; PTAs' information sharing and dispute resolution mechanisms are often underdeveloped, ineffective, or undermined by powerful members; the material gains from trade and the centrality in the PTA network that is obtained from membership in many institutions cause conflict through shifting the balance of power; and institutional memberships create competitive relationships of animosity (Gallarotti 1991).

First, the WTO does a rather poor job of punishing most sanctions violations; mainly, the high-profile cases get the attention, and often, states go ahead and use sanctions anyway.[13] And when it comes to PTAs, there are dozens of them that are never notified by the WTO at all and so may not be complying with the rules the organization has put into place to prevent unjustified forms of market discrimination. Moreover, of those PTAs that have been notified, very few are monitored for conformity with WTO provisions or punished for breaking the rules (Laird 1999). Thus, rules outlawing most sanctions might be in place inside PTAs, or inside the WTO in which PTAs are supposed to be embedded, but these rules are institutionally weak. While feebly enforced or nonexistent rules may not increase sanctioning behavior on their own, when combined with other institutional mechanisms that do

encourage such behavior, a net increase in sanctioning behavior may result because states can get away with it.

Second, a minority of PTAs are aptly equipped with the necessary institutional features to reduce conflict leading to sanctions (and to war). Not all PTAs offer dispute settlement procedures, and many are weakly institutionalized (Smith 2000). Moreover, it is probably the case that different institutional features have a varying impact.[14] Organizational pathologies often affect international organizations (Barnett and Finnemore 1999), undermining mechanisms intended to resolve disputes and overcome collective action problems, further diminishing the effects of these institutions or allowing them to come under the sway of powerful states. Since PTAs, like other international organizations, create new interests and issue areas over which to clash and increase interactions,[15] the failure of antisanctioning rules or weak internal dispute resolution mechanisms can prompt states to abandon or subvert these rules and mechanisms, creating a net increase in sanctioning behavior.

Third, PTAs can potentially create relative power imbalances, enhancing market power unevenly among PTA members (Mansfield 1994). Albert Hirschman proposed many years ago that trade integration can provoke economic hostilities between states because welfare gains are rarely felt inequally and large inequalities in the relative distribution of benefits shift the balance of interstate market power (Hirschman 1945), a known source of conflict between states (Gilpin 1981; Mearsheimer 1990; Waltz 1970, 1979). It has long been understood that power politics are an inevitable feature of any trade institution, because trade gains create both security and market externalities (Gowa and Mansfield 1993). Rivalry is not a sufficient condition to end trade; states in competition with one another over resources sometimes trade (Pollins 1989b, 1989a; Gowa and Mansfield 1993; Morrow 1997).[16] And while there is some evidence that trade institutions confer credibility on domestic economic reform programs by revealing previously hidden information about policy preferences (Fernandéz 1997; Staiger and Tabellini 1987; Whalley 1996), there is no evidence that they supply information about initiators' or targets' capabilities or resolve that can preempt the onset of aggressive acts such as sanctions. In addition, states that belong to many PTAs with many other states are more likely to use economic sanctions because they can draw on a larger pool of support due to their position as highly central actors in the network of PTAs.[17] States that are highly central in the PTA network have multiple formal venues where they can gain support for sanctioning others as well as informal ties with other states, making sanctioning behavior easier and therefore more likely, if not necessarily more successful. They also can reward other actors for participating in sanctions, can create issue linkages across venues in order to assemble ad hoc coalitions to sanction others (Mansfield 1994), and have a privileged position when it comes to access to information flows due to being well connected (Dorussen and Ward 2008).

Finally, PTAs often create animosity instead of trust. On one hand, the lessons of European integration suggest that building community through upgrading the common interest between PTA members is hard: it requires a pluralist social structure, a high level of economic and industrial development, and ideological similarity (Haas 1961; Pevehouse and Russett 2006). It probably also requires that liberal democratic structures are in place (Russett and Oneal 2001) and that states have a high number of shared memberships in institutions with sufficient capacity (Kinsella and Russett 2002; Pevehouse and Russett 2006). Security communities are thus most likely to develop through economic relations between Western nations (Bearce 2003).

Additionally, membership in international institutions also divides states into segregated groups and establishes hierarchies in the international system (Beckfield 2003, 2006; Hafner-Burton and Montgomery 2006). This increases conflict through two mechanisms. First, competition between similarly placed actors in a network can lead to political conflicts of various kinds (Levine and Moreland 1998; Burt 1987). States that are in similar positions—that have similar portfolios of institutional membership—may compete more fiercely against each other, especially when resources are limited. This tendency is exacerbated in the case of PTAs, which are by design exclusionary and often asymmetrical: Preferred trade arrangements with one state negatively affect other states whose products do not receive the same favored tariffs or quotas; states with similar portfolios are likely to have similar interests. Second, the more actors that share similar positions, the less they are motivated by a decreased sense of common identification in a larger group and increased competition with additional contestants (Bales and Borgatta 1955; Thorne and Luria 1986; Maccoby 1990). The larger the number of states that have to compete for a particular economic niche in the PTA network, the more likely it is that they may come into economic conflict. This mechanism is similar to the structural realist notion that the likelihood of competition grows when moving from a bipolar system to a multipolar system (Waltz 1979; Mearsheimer 2001).

Hypotheses

These two lines of reasoning suggest dueling expectations. The first three hypotheses test the PTA rules, dispute resolution, and the benefits of trade, respectively: Do states that (1) join PTAs in general, (2) join PTAs with dispute resolution mechanisms, and (3) join PTAs and at the same time have high GDPs and high levels of bilateral trade sanction more or less?

Hypothesis 1a(b): Pairs of states with joint membership in international trade institutions are less (more) likely to engage in sanctions than pairs without joint membership.

Hypothesis 2a(b): Pairs of states with joint membership in international trade institutions with higher levels of dispute resolution are less (more) likely to engage in sanctions than pairs with joint membership in institutions with lower levels of dispute resolution.

Hypothesis 3a(b): Pairs of states with joint membership in international trade institutions with substantial welfare gains are less (more) likely to engage in sanctions than pairs with joint membership but small welfare gains.

The latter three hypotheses test the arguments about community and trust through PTAs versus competition and animosity through PTAs: (4) Do states that are connected to many other states through PTAs, (5) states that have similar institutional portfolios with each other, and (6) states that have similar portfolios with many different states sanction less due to trust and cooperation, or do they sanction more due to competition and animosity?

Hypothesis 4a(b): States with higher degree centrality in the PTA network will be less (more) likely to initiate sanctions than states with lower degree centrality.

Hypothesis 5a(b): States will be less (more) likely to initiate sanctions if a potential target has similar patterns of trade institution membership.

Hypothesis 6a(b): States that have similar patterns of trade institution membership with a large number of states will be less (more) likely to initiate sanctions.

Research Design

We explore the merits of these conjectures using pooled cross-national time-series data. Our attention is focused on all pairs of states from 1947—the year of the General Agreement on Tariffs and Trade (GATT)—to 2000.[18] Because sanctions are directed political behavior—punitive actions taken by one state toward another rather than mutually between two states—our unit of analysis is the directed dyad year, which allows us to analyze the strategic behavior of both initiators and targets accordingly.[19]

In order to ensure comparison with studies supporting the thesis that international institutions dampen conflict (see, for example, Dorussen and Ward 2008), we draw insights from Oneal and Russett's (1999) analysis of the effects of international organizations on war as well as Mansfield and Pevehouse's (2000) study of the effects of PTAs on militarized disputes.[20] However, we rely on an alternative trade institution data set in order to examine the post–Cold War period and a larger sample of institutions.[21] To ensure comparison with studies predicting the onset of economic sanctions, we draw insight from Marinov (2003, 2005) and Cox and

Drury (2006) and rely on Hufbauer et al.'s (hereafter, HSE; 2007) data on sanctions.[22] We base our GDP and trade data on Gleditsch's (2002) expanded set,[23] draw our measures of regime type from Polity IVb (Marshall and Jaggers 2003), and generate the remainder of our data using EUGene (Bennett and Stam 2000, 2005). We calculate our social network variables using the SNA package in R (R. Development Core Team 2005; Butts 2005). Regression analysis was done in Stata (Stata Corporation 2005) using logistic regression appropriate for rare events data (King and Zeng 2001b, 2001a).[24]

We begin by estimating the following model in which all independent variables are lagged by one year; we employ a logit estimator:

$$\begin{aligned}
\text{Sanctions}_{ij} = {}& \beta_0 + \beta_1 \text{PTA}_{ij-1} + \beta_2 (\text{PTA}_{ij-1} \times \text{Trade}_{ij-1}) + \beta_3 (\text{PTA}_{ij-1} \times \text{GDP}_{i-1}) \\
& + \beta_4 (\text{PTA}_{ij-1} \times \text{GDP}_{j-1}) + \beta_5 \text{PTACentDegree}/1000_{i-1} \\
& + \beta_6 \text{PTAClusterSize}_{i-1} + \beta_7 \text{PTAClusterSame}_{ij-1} + \beta_8 \text{Polity}_{i-1} \\
& + \beta_9 \text{Polity}_{j-1} + \beta_{10} \text{Trade}_{ij-1} + \beta_{11} \text{GDP}_{i-1} + \beta_{12} \text{GDP}_{j-1} \\
& + \beta_{13} \text{Allies}_{ij-1} + e_{ij}
\end{aligned} \tag{1}$$

HSE (2007) code sanctions onset (Sanctions_{ij}) as occurring in the first year that a sanctions threat from official recorded sources occurs or a sanctioning event is recorded (e.g., 1991 is the first year if a threat or event is recorded at any point in 1991); sanctions end when initiator or target countries change their policies or "when the campaign simply withers away" (p. 43). Sanctions are coded to have continued in a year if the sanctions were still in force at the end of the year. HSE define economic sanctions "to mean the deliberate, government-inspired withdrawal, or threat of withdrawal, of customary trade or financial relations" (p. 2). They include only sanctions in support of explicit foreign policy goals while excluding "the normal realm of economic objectives sought in banking, commercial, and tax negotiations between sovereign states" (p. 3). Note that the sanctions observed in this data set are not sanctions initiated by a PTA but rather are sanctions initiated by a government. We employ these data because they are ubiquitous in the study of economic sanctions and are the basis for nearly all empirical research (Drezner 2000; Dorussen and Mo 2001; Lektzian and Souva 2001; Cox and Drury 2006; Dashti-Gibson, Davis, and Radcliff 1997; Morgan and Schwebach 1997); they also suffer considerable limitations. Sampled on the availability of media coverage, the data were nonrandomly selected. Moreover, there is debate over their coding; the set includes 5 instances (of 226) of two other types of economic instruments that may be distinct from economic sanctions: commercial negotiations and economic warfare (Morgan and Schwebach 1997; Pape 1997). Although we cannot control the sample and are subject to its limitations, we can address several coding errors; while we do not consider the inclusion of a small number of alternative forms of economic coercion to be problematic, we nevertheless select out these instances accordingly in our robustness checks.

The data set includes 226 cases of dyadic sanctions onset between 1948 and 2000, compiled from HSE's (1990) expanded list of sanctions cases.[25] Institutions commonly participate in sanctioning episodes; about one-quarter of the cases involve institutions either directly or indirectly. In order to maximize the small sample of sanctions cases, we include the lead state (defined as the state with the highest Composite Index of National Capability score) in each institution as the initiator of a sanction.[26] For sanctions outside an institution but involving multiple states, we include every initiator–target dyad. Twelve ''nonsanctions-relevant'' dyads (between states that do not trade) experienced sanctions episodes; if target states that trade less than 0.1% of their GDP with their sanctioners were also excluded, this would expand to 34 cases. We choose to include all of these dyads because sanctions are used for symbolic and social punishment purposes as well as for altering the policies of the target state; excluding them would artificially cut off the data set. Finally, we allow for sanctions onset even when a previous episode is still ongoing, for similar reasons. The United States dominates the data set, representing 60 percent of the cases of sanctions onset. We include a U.S. dummy variable in a robustness check to determine whether our results are driven by U.S. behavior.[27]

To test the hypotheses on whether PTAs, market power, and gains from trade increase or decrease sanctions (hypothesis 1 and hypothesis 3), we employ four institutional variables, consistent with previous research. Mansfield and Pevehouse (2000) measure whether a pair of states ij share membership in any PTA during a given year t, drawing on their sample of institutions from 1950 to 1985. They call this binary variable PTA_{ij} and expect that dyads sharing mutual membership will be less likely to go to war. We replicate this variable in our updated sample, which includes more institutions and covers the period from 1947 to 2000. Because the authors' sample excludes general trade institutions that were not agreements (e.g., GATT), we exclude these institutions from our principal sample.[28] Using PTA_{ij}, we recreate several interaction terms with GDP and trade variables, described below.

Unfortunately, systematic data on PTA enforcement do not exist for our sample of institutions and would be difficult to collect. This lack of data makes a precise test of the hypothesis on enforcement difficult. However, data on PTA-proposed integration provide a reasonable way to explore this hypothesis, albeit on a reduced sample of institutions.[29] PTAs vary in their degree of integration and include nonreciprocal agreements,[30] free-trade areas,[31] customs unions,[32] common markets,[33] and economic unions (Balassa 1961). Commonly, as integration deepens, so too do expected gains and adjudication procedures. We thus create an ordered variable, $PTADisputeRes_{ij}$, to consider whether dyads with mutual membership in at least one PTA with reciprocal market access (*a free trade area* = 1, *common market* = 2, *customs union* = 3, and *economic union* = 4) behave differently than other dyads due to their higher likelihood of having access to increasing levels of dispute resolution (hypothesis 2). We create similar variables to

test the effects of membership in at least one PTA with a proposed common market, a customs union, or an economic union, respectively.

To test the remaining hypotheses on the community-building versus animosity-creating aspects of PTAs, we compute three variables consistent with Hafner-Burton and Montgomery's (2006) social network analysis of international organization, which allow us to test the systemic network effects of membership in trade institutions.[34] We use the same base measures; however, since economic sanctions, unlike militarized disputes, are inherently directed, we use different derivations of those base measures for our directed-dyadic regression. Hafner-Burton and Montgomery name their centrality variable (a common measure in social network analysis) *prestige*, summing up the total number of international organizations that each state shares with each other state; we do the same with PTAs but adopt the more precise and neutral term *centrality*, naming the variable PTACentDegree$_i$ to indicate that the variable measures the degree centrality of a potential sanctioner in the PTA network. However, we refine their symmetric measure of centrality difference by adopting a directed-dyadic design consistent with the literature on sanctions. We hypothesize that it is the absolute centrality of each potential sanctions sender that is the crucial variable and not its centrality relative to the target. In the communities hypothesis (hypothesis 4a), norms of cooperation should spread to the more central actors, decreasing their tendency to sanction others; while in the case of the competition hypothesis (hypothesis 4b), the more central actor will sanction more often due to its greater access to information and wider support networks.

In order to test whether states that have similar patterns of institutional membership are more or less likely to use sanctions, because they are more or less likely to build trust or develop animosity, we first calculate a measure of distance (a measure of dissimilarity) by taking the sum of the differences between two states' membership with every other state. Note that these states do not have to belong to the same PTAs as long as they share the same number of memberships with other states; for example, if two states belong to two different bilateral PTAs with the United States and no other PTAs, the distance between them would be zero. Since we are testing a hypothesis that competition is a function of both whether the other state in a dyad is close (hypotheses 5a and 5b) and the total number of other states that are close to the sender (hypotheses 6a and 6b), we use the distance measure to divide the international system into structurally equivalent clusters (a group of states a short distance from each other and a larger distance from other states). Following Hafner-Burton and Montgomery (2006), we divide states into these clusters while controlling for the average size of clusters in each year, creating two variables, PTAClusterSize$_i$ (the total number of other states a short distance away) and PTAClusterSame$_{ij}$ (whether two states are a short distance from each other or not). However, instead of measuring the maximum cluster size in a dyad as they do, we use the cluster size of the potential initiator. The cluster variables allow us to test the hypotheses on

animosity versus community; community hypotheses predict that if a potential sanctioner is in the same cluster as the target (i.e., with similar portfolios) and the more states in the sanctioner's cluster, the less likely the sender is to sanction the target (hypothesis 5a and hypothesis 6a). Conversely, the animosity hypotheses predict that these two conditions will make it more likely that the sender will sanction the target (hypothesis 5b and hypothesis 6b). Finally, we control for a variety of alternative factors believed to shape the onset of sanctions. Polity_i and Polity_j measure the political character of the potential sender and targets, respectively. The variables range from –10, for a state characterized by extremely autocratic political institutions, to 10, for a state characterized by extremely democratic political institutions. These variables control for arguments common in the literature that democracies may be less likely to initiate or suffer economic sanctions as well as faster to recover (Lektzian and Souva 2001, 2003; Cox and Drury 2006). Trade_{ij} measures the sum of i's exports to and imports from j in year t, while GDP_i and GDP_j measure the real gross domestic product of the potential sender and target states, respectively, in trillions of 1996 U.S. dollars. Both are centered at mean zero for proper interpretation of the lower-order interaction terms. Allies_{ij} equals 1 if dyad members were linked by formal mutual defense treaties, neutrality pacts, or an entente, and equals 0 otherwise. This variable is important to control for the common wisdom that allies are generally less likely to conflict with each other than are nonallied states because they share a common security interest, although previous studies have shown that allies are actually more likely to sanction each other, possibly because the option of war is off the table (Lektzian and Souva 2003; Cox and Drury 2006).

Results

We report estimates of equation (1) in the first column of Table 1;[35] columns 2, 3, and 4 report estimates for models testing fewer hypotheses separately. Our results cast doubt on the view that PTAs decrease economic sanctions. Dyads linked by mutual ties to trade institutions are not less likely to engage in sanctioning behavior than other pairs of states, regardless of their associated market power ($\text{PTA}_{ij-1} \times \text{GDP}_{i-1} \neq 0$; $\text{PTA}_{ij-1} \times \text{GDP}_{j-1} \neq 0$; $\text{PTA}_{ij-1} \times \text{Trade}_{ij-1} \neq 0$; we fail to reject each of these equations equal to zero at a 0.05 confidence level), and may in fact be associated with sanctions onset; in two of the four models, dyads that belong to a PTA are more likely (at the 0.10 level) than other dyads to sanction. While PTAs may help to prevent war among trade partners, they do not prevent economic sanctions and may encourage them.[36] Moreover, none of the integration variables, tested in column 4 ($\text{PTADisputeRes}_{ij-1}$), affect the likelihood of sanctions onset: dyads with mutual memberships in PTAs that have higher levels of integration (such as proposing to establish common markets) are just as likely to experience sanctions as

Table 1
Estimates of the Effects of Preferential Trade Agreements (PTAs) on Economic Sanctions, 1947–2000

Variable	(1) Interaction	(2) Institutional	(3) Power Politics	(4) Dispute Resolution
PTA_{ij-1}	0.54$^+$ (0.29)	0.34 (0.23)	0.46$^+$ (0.27)	0.33 (0.30)
$PTA_{ij-1} \times Trade_{ij-1}$	−29.35 (35.60)	−17.70 (35.45)		
$PTA_{ij-1} \times GDP_{i-1}$	3.19 (9.07)	4.27 (8.52)		
$PTA_{ij-1} \times GDP_{j-1}$	8.86 (5.86)	6.64 (5.75)		
$PTACentDegree/1000_{i-1}$	3.53*** (0.66)		3.58*** (0.64)	3.51*** (0.67)
$PTAClusterSize_{i-1}$	1.90*** (4.23)		1.89*** (4.09)	1.90*** (4.05)
$PTAClusterSame_{ij-1}$	0.29$^+$ (0.17)		0.28$^+$ (0.17)	0.25 (0.17)
$PTADisputeRes_{ij-1}$				0.10 (0.10)
$Polity_{i-1}$	0.12*** (0.02)	0.13*** (0.02)	0.12*** (0.02)	0.13*** (0.02)
$Polity_{j-1}$	−4.39** (1.65)	−4.81** (1.67)	−4.38** (1.65)	−4.40** (1.65)
$Trade_{ij-1}$	−45.18* (19.64)	−46.08* (20.08)	−57.76*** (16.14)	−56.68*** (15.94)
GDP_{i-1}	0.69*** (0.02)	0.69*** (0.02)	0.69*** (0.02)	0.70*** (0.02)
GDP_{j-1}	0.37*** (0.09)	0.36*** (0.09)	0.36*** (0.09)	0.36*** (0.09)
$Allies_{ij-1}$	1.14*** (0.23)	1.21*** (0.23)	1.16*** (0.23)	1.13*** (0.23)
Constant	−11.14*** (0.33)	−9.65*** (0.19)	−11.12*** (0.32)	−11.12*** (0.32)
N	815,992	815,992	815,992	815,992

Note: The numbers in parentheses are Huber standard errors. Estimation is rare-events logit.
$^+ p < .10.$ $^* p < .05.$ $^{**} p < .01.$ $^{***} p < .001.$

dyads with memberships in free-trade agreements, nonreciprocal agreements, or no PTAs at all. Since this variable is nonsignificant and came from a different sample of PTAs, we drop it for the rest of our analyses. We therefore do not find support in either direction for any of our first three hypotheses.

Although PTA membership does not directly influence whether PTA members use sanctions in either direction (as many scholars expect it should), disparities in PTA network centrality and group membership do. We find three particular circumstances under which trade institutions significantly increase the likelihood of sanctions among PTA members. When the potential initiator is highly central in the PTA network ($PTACentDegree_{i-1} > 0$), is in the same group as a potential target ($PTAClusterSame_{ij-1} > 0$), or belongs to a particularly large group ($PTACluster Size_{i-1} > 0$), it is more likely to enact sanctions against a target. This result is robust whether we include PTA interaction terms with trade and GDP in the regression or not (columns 1 and 3), and indicates that centrality in the overall PTA network exacerbates the use of sanctions. Senders in the same cluster with targets or senders in clusters with a larger number of members are also more likely to enact sanctions, although the findings on $PTAClusterSame_{ij-1}$ are of significance only at the 0.10 level.[37] Consequently, we see strong support for hypotheses 4b and 6b and some support for hypothesis 5b.

Our findings with respect to other variables were mixed. An increase in the GDP of either initiator or target leads to an increased likelihood of sanctions, consistent with standard power politics views, but regardless of PTA membership. Some of our results were consistent with previous findings on sanctions; while democracies are more likely to use sanctions, they are less likely to be targets, although this latter observation is an artifact of U.S. hegemony, as we discuss below. Additionally, alliances seem to increase the use of sanctions. This apparently odd result seems more plausible if sanctions are viewed as a less violent alternative to war. We found that increased trade actually led to decreased sanctions, regardless of PTA membership and consistent with the general liberal notion that increased trade should decrease conflict.

We compute predicted probabilities of sanctions onset based on the model presented in column 3 of Table 1 to interpret our findings. The results are presented in Table 2. The first row predicts the baseline probability that an average directed dyad engages in sanctions.[38] This probability is low because sanctions are rare events. In column 1, we calculate the absolute change in the probability of sanctions onset across a range of conditions to isolate the influence of each covariate. In column 2, we compute the relative risk for sanctions onset due to that change. The results show that PTAs influence the probability of sanctions in important ways but not in the ways expected by most of the literature. Although mutual membership does not change the probability that dyads engage in sanctions in a statistically significant way at the 95% level, senders' centrality and group membership in the PTA network do in ways that can promote sanctions behavior rather than quell it.

Table 2
Effects of Covariates on the Predicted Probability of an Economic Sanction

Variable	Change in Probability	Relative Risk
Baseline	4.71	
PTA_{ij}		
Maximum value (1)	2.65	1.56
$PTACentDegree/1000_{i-1}$		
Minimum value (0)	−7.16	0.85[a]
Maximum value (0.696)	4.25	10.03[a]
$PTAClusterSize_{i-1}$		
Minimum value (1)	−2.93	0.38[a]
Maximum value (108)	6.63	2.41[a]
$PTAClusterSame_{ij-1}$		
Maximum value (1)	1.43	1.30
$Polity_{i-1}$		
Minimum value (−10)	−3.25	0.31[a]
Maximum value (10)	1.27	3.70[a]
$Polity_{j-1}$		
Minimum value (−10)	2.41	1.51[a]
Maximum value (10)	−1.66	0.65[a]
$Trade_{ij-1}$		
Minimum value (−.000165)	5.25	1.01[a]
Maximum value (.36142)	−4.71	0.00[a]
GDP_{i-1}		
Minimum value (−.1557)	−2.42	0.95[a]
Maximum value (.8615)	5.37	11.06[a]
GDP_{j-1}		
Minimum value (−.1557)	−3.21	0.40[a]
Maximum value (.8615)	1.41	27.48[a]
$Allies_{ij-1}$		
Maximum value (1)	1.04	3.22[a]

Note: Predictions for GDP and GDP_{j-1} are calculated with control for the U.S. economy (Table 3, model 5). All other predictions based on power politics model (Table 1, model 3). PTA = preferential trade agreement.
a. Predictions fall within 95% confidence intervals.

The influence of PTA network centrality is particularly notable. When the initiating state is extremely central, the probability that sanctions will take place is ten times greater than under average conditions. Controlling for trade and the GDP of states, centrality strongly reinforces the aggressive behavior of powerful actors; states that belong to many PTAs with many other states are considerably more likely to aggressively sanction others. By contrast, when the initiating state has no centrality, the probability that sanctions will occur is slightly smaller than average; while high degrees of centrality can encourage potential initiators to sanction, low

centrality does not substantially deter them. In practical terms, if a state joins a PTA with one or two other states, there is little change in sanctioning behavior, but if a state joins many PTAs with many members, the likelihood of economic sanctions increases dramatically. Our results also confirm that democracies are indeed more likely than other states to initiate economic sanctions but that states are less likely to be targeted if they are democracies than autocracies. Moving from an autocracy (-10) to a democracy ($+10$) increases the fractional risk of implementing sanctions by a factor close to that of centrality. Table 2 also suggests that, like centrality, the size of the initiators' and targets' economies matters a great deal; wealthier states are much more likely to initiate sanctions and also to be a target, but as bilateral trade increases to its maximum value, the probability goes to zero, although the maximum here is a clear outlier.

Apart from institutional hypotheses, our analyses show that more economically powerful states take advantage of their powerful positions and are consequently much more likely to enact sanctions. Evidence regarding the effects of military alliances on trade between allies is mixed, showing, variously, that allied dyads trade more than, less than, or equal to nonallied dyads (Gowa and Mansfield 1993; Gowa 1994; Long 2003; Mansfield and Bronson 1997; Mansfield, Milner, and Rosendorff 2000). Similarly, our results with respect to allies are mixed: the United States in particular is more likely to sanction its allies (see Table 3), even if military allies in general have only a weak propensity to do so. Still, we do find that increased levels of trade lead to a decrease in economic sanctioning behavior; while the logic of PTAs decreasing economic sanctions may not hold up, the general pacific effects of trade do appear to hold. We do not directly test the democratic peace hypothesis in our work, although elsewhere we find that when accounting for the role of the United States, democracies are no more or less likely to sanction each other than other dyads (Hafner-Burton and Montgomery 2008); however, democracies were consistently more likely to enact sanctions than other states.

Determinants of PTAs

While PTAs do not appear to prevent or precipitate sanctions among members, they may themselves be the result of sanctions—states previously engaged in sanctions may create PTAs to avoid future sanctions or because they anticipate the need to use future sanctions.[39] Evidence already shows that losses in formal GATT/WTO disputes have led states to seek entrance into PTAs (Mansfield and Reinhardt 2003). However, we can find no evidence that past sanctioning behavior predicts states' future willingness to form PTAs. A full analysis of the determinants of PTA membership is beyond the scope of this article. However, as a preliminary effort to explore whether our findings are a by-product of states' choices to belong to PTAs rather than an effect of PTAs themselves, we replicated Mansfield and Reinhardt's (2003) study on the determinants of PTAs. We merged our data on sanctions onset

with their full data set on trade agreements and reran all six of their models. A previous sanctions onset between states in a dyad never predicts membership in a future PTA between those states. Further research into the determinants of PTA networks is needed.

Further Methodological Considerations

Our findings are strongly robust: members of the same PTA are no less likely to engage in economic sanctions than other pairs of states, and they may actually be more likely to do so. While PTA membership alone does not prevent economic sanctions, the emergent properties of the entire network of PTA memberships do have significant effects: centrality in the PTA network particularly matters. In this section, we perform a number of additional analyses to provide results that are as consistent with as many different sample and variable specifications as possible. Although we cannot report all of those steps here, we do address some of the more important issues.

Table 3 offers estimates across four additional models. Our first two robustness checks consider key variables we may have omitted from the core analyses. In model 5, we consider the influence of the United States, US_i, the world's most frequent initiator of economic sanctions. This is important because previous research has shown that the United States, unlike other states, commonly sanctions its allies (Cox and Drury 2006; Hafner-Burton and Montgomery 2008). We find that after accounting for the influence of the United States, while democracies are still more likely to enact sanctions, they are no more or less likely to be targets than autocracies. In model 6, we test whether our results are consistent when we control for mutual membership in the GATT/WTO, in which most PTAs are nested. Finally, models 7 and 8 offer different corrections for temporal dependence common in the literature. Following Beck, Katz, and Tucker (1998) and much of the research on war, we include cubic splines as well as a linear term to correct for the length of time since the previous sanction between a dyad. Following Marinov's (2003) research on sanctions, we include the logarithm of the number of years since the last sanction.[40]

Our results are quite stable across models, with small variations. The United States is observably unique among states, willing to initiate sanctions more often than others.[41] When we control for this outlier, our findings on PTA influence remain largely stable; mutual membership in PTAs by itself does not influence the probability of sanctions, although states' centrality within the PTA network as well as cluster size both increase the likelihood. Moreover, controlling for GATT/WTO membership as well as temporal dependence has no effect on our findings. In other results not reported in our tables, we found that when trade was eliminated or when contiguity and the log of the distance between states were included, the PTA coefficient became insignificant, but other variables were not substantively affected.

Table 3
Estimates of the Effects of Preferential Trade Agreements (PTAs) on Economic Sanctions, 1947–2000: Robustness Checks

Variable	(5) United States	(6) GATT/WTO	(7) Splines	(8) Log Years
PTA_{ij-1}	0.58* (0.28)	0.48$^+$ (0.27)	0.49$^+$ (0.27)	0.53* (0.26)
$PTACentDegree/1000_{i-1}$	3.82*** (0.64)	3.61*** (0.64)	3.96*** (0.71)	3.67*** (0.64)
$PTAClusterSize_{i-1}$	8.77*** (4.10)	1.90*** (4.04)	1.88*** (4.05)	1.87*** (4.06)
$PTAClusterSame_{ij-1}$	0.17 (0.16)	0.26 (0.17)	0.25 (0.16)	0.22 (0.15)
$Polity_{i-1}$	7.49*** (1.92)	0.13*** (0.02)	0.12*** (0.02)	0.12*** (0.02)
$Polity_{j-1}$	−9.69 (1.75)	−4.26** (1.60)	−3.71* (1.60)	−4.13* (1.62)
$Trade_{ij-1}$	−45.17** (13.72)	−57.50*** (16.02)	−47.37*** (11.80)	−53.89*** (14.08)
GDP_{i-1}	0.29*** (0.06)	0.70*** (0.03)	0.69*** (0.02)	0.69*** (0.02)
GDP_{j-1}	0.35*** (0.09)	0.36*** (0.09)	0.39*** (0.09)	0.37*** (0.08)
$Allies_{ij-1}$	0.75** (0.25)	1.17*** (0.23)	1.21*** (0.21)	1.18*** (0.21)
US_{i-1}	3.38*** (0.53)			
$GATT/WTO_{ij-1}$		−8.71 (2.04)		
Splines0			−6.48 (6.34)	
Splines1			1.97 (6.83)	
Splines2			−5.27 (5.10)	
Splines3			3.72* (1.76)	
Log years				−0.24** (0.09)
Constant	−10.45*** (0.27)	−11.10*** (0.34)	−10.55*** (0.42)	−10.42*** (0.41)
N	815,992	815,992	815,992	815,992

Note: The numbers in parentheses are Huber standard errors. Estimation is rare-events logit. GATT/WTO = General Agreement on Tariffs and Trade/World Trade Organization.

$^+ p < .10.$ $^* p < .05.$ $^{**} p < .01.$ $^{***} p < .001.$

When trade dependence of both the target and initiator are substituted for bilateral trade, an increase in the initiator's dependence decreases the likelihood of sanctions, while the target's trade dependence has no effect. Including the capability ratio of states had no substantive effect on the results, either.

Conclusion

A core premise uniting the contributions to this special issue is that international institutions shape international affairs of all kinds but that they do so in complex and often contingent ways that have yet to be very well understood or observed.[42] A principal goal of our collective research is to show systematically the many ways by which institutions shape international politics sometimes for the better and sometimes for the worse. Our contribution accordingly makes the claim that a growing population of international trade institutions plays an independent and significant role in the dynamics of economic sanctions between states—a rapport between increasingly authoritative institutions in world affairs and sharply criticized foreign policies that has never been robustly examined, despite a wealth of thought on the subject—but not in the way you imagine these institutions might matter. Their effects appear indirect and largely derivative of their structural network properties.

PTAs provide many useful and even virtuous functions; they can at times institutionalize cooperation among nations, preventing outbreaks of war and repression of human rights or helping states to consolidate democracy. Many of their consciously designed institutional qualities provide these services. But they do not stop states from imposing harmful economic sanctions on each other, raising a whole new set of puzzles about what these institutions do and how they function. In particular, this finding makes apparent that trade institutions are shaping the politics of conflict in different, and perhaps opposing, ways, helping to resolve or to stave off military conflicts while at the same time failing to discourage economic sanctions. Why? Are PTAs preventing wars among their members simply because they trigger sanctions instead as a replacement for military intervention? And what other kinds of political conflict and cooperation are they shaping? We continue to investigate these questions in ongoing work.

Appendix

	PTA$_{ij-1}$	PTA$_{ij-1}$ × Trade$_{ij-1}$	PTA$_{ij-1}$ × GDP$_{i-1}$	PTA$_{ij-1}$ × GDP$_{j-1}$	PTAPrestige$_{i-1}$	PTAClusterSize$_{i-1}$	PTAClusterSamPTASame$_{ij-1}$	Polity$_{i-1}$	Polity$_{j-1}$	Trade$_{ij-1}$	GDP$_{i-1}$	GDP$_{j-1}$	Allies$_{ij-1}$	US$_{i-1}$	GATT$_{ij-1}$
PTA$_{ij-1}$	—														
PTA$_{ij-1}$ × Trade$_{ij-1}$	0.07	—													
PTA$_{ij-1}$ × GDP$_{i-1}$	0.01	0.37	—												
PTA$_{ij-1}$ × GDP$_{j-1}$	0.01	0.37	0.07	—											
PTACentDegree$_{i-1}$	0.37	0.08	0.17	-0.03	—										
PTAClusterSize$_{i-1}$	-0.36	-0.02	0.00	0.02	-0.52	—									
PTAClusterSame$_{ij-1}$	-0.03	0.02	-0.01	-0.01	-0.29	0.54	—								
Polity$_{i-1}$	0.06	0.05	0.12	0.02	0.27	-0.17	-0.10	—							
Polity$_{j-1}$	0.06	0.05	0.02	0.12	0.07	-0.05	-0.10	0.05	—						
Trade$_{ij-1}$	0.08	0.90	0.33	0.33	0.10	-0.02	0.02	0.07	0.07	—					
GDP$_{i-1}$	-0.01	0.12	0.31	0.02	0.09	0.03	-0.01	0.21	0.01	0.20	—				
GDP$_{j-1}$	-0.01	0.12	0.02	0.31	0.04	-0.03	-0.01	0.01	0.21	0.20	0.00	—			
Allies$_{ij-1}$	0.18	0.08	0.01	0.01	0.00	-0.01	0.11	0.02	0.02	0.12	0.06	0.06	—		
US$_{i-1}$	-0.03	0.05	0.10	0.01	-0.04	0.07	0.04	0.12	0.00	0.11	0.72	-0.01	0.09	—	
GATT$_{ij-1}$	0.19	0.03	0.03	0.03	0.21	-0.20	-0.17	0.22	0.22	0.05	0.08	0.08	0.01	0.04	—

Note: PTA = preferential trade agreement; GATT = General Agreement on Tariffs and Trade.

Notes

1. On centrality in networks and its advantages in terms of access, information, coalition building, and power, see the general explanations in Wasserman and Faust (1997) and Scott (2000).

2. Fifty-one of the 226 cases in our data set are listed as having more than one primary sanctioner; 20 of these are ad hoc coalitions.

3. On in-group and out-group behavior and competition in networks, see Levine and Moreland (1998) and Burt (1987).

4. For studies of regionalism at the domestic level of analysis, see Busch and Milner (1994) and Mansfield and Milner (1997). For a study of economic sanctions at the domestic level of analysis, see Hiscox (n.d.).

5. There is some question as to whether economic sanctions are a precursor to or substitute for military intervention. We are currently writing on the matter elsewhere and do not address that topic here for brevity.

6. For a nice overview and critique of these debates, see Drezner (2000).

7. For a response to Hufbauer et al. (HSE; 1990), see Pape (1997) and Morgan and Schwebach (1997). For more general discussions of the ineffectiveness of sanctions, see Galtung (1967), Hoffmann (1967), Knorr (1977), Renwick (1981), and Daoudi and Dajani (1983).

8. For accounts of the multilayered sanctions on Iran, see Perkovich and Manzanero (2004); for North Korea, see Lee (2003).

9. However, Hafner-Burton and Montgomery (2008) show that this finding is an artifact of U.S. hegemony; most sanctions are initiated by the United States, and it is unlikely to target another democracy. Other democracies, by contrast, are not so reticent to sanction democracies.

10. In 1990, the United States placed an embargo on the import of Mexican tuna, even though an international tribunal for the General Agreement on Tariffs and Trade ruled that sanctions were a violation of international law.

11. For example, article 96 of the Cotonou Agreement between the European Union and the countries of Africa, the Caribbean, and the Pacific (ACP countries) lays out a sanctions procedure in the event of human rights violations. "Appropriate measures" can be put into effect to punish a member state that has violated the human rights clause of the agreement only after formal consultations have taken place. Full-blown sanctions are restricted to measures of last resort.

12. Bearce (2003) and Schiff and Winters (1998) similarly assume that trade between neighboring states creates trust and reduces the likelihood of conflict and that international organizations can serve a trust-building function. See also Schiff and Winters (2002).

13. U.S. sanctions against Mexico in the tuna/dolphin case is an example (Runge, Ortalo-Magné, and Vande Kamp 1994).

14. Our thanks to Dan Drezner for bringing this issue to our attention.

15. See Boehmer, Gartzke, and Nordstrom (2004, 5-6) on the complex relationship between institutions and conflict.

16. Barbieri has shown that open trade before World War II increased the likelihood of observing military disputes among partners (Barbieri 2002, 1996).

17. Centrality (specifically, degree centrality) is proportional to the number of institutional ties received by a state; a state accordingly is highly central if many other states have institutional ties to it. For a complete theoretical and mathematical treatment of these measures, see Wasserman and Faust (1997); for an application to the IO network, see Hafner-Burton and Montgomery (2006) and Dorussen and Ward (2008).

18. Traditional sample limitations to politically relevant dyads in the study of war are not appropriate here, as almost all states trade with all other states, making sanctions possible. We choose to use all dyads instead of the "sanctions-relevant" dyads used by Cox and Drury since we observe several instances of sanctions among non-sanctions-relevant dyads or dyads with low levels of trade as well as

multiple (redundant) layers of sanctions on some states. We replicate on this limited sample as a robustness check.

19. An alternative unit of analysis is the symmetrical dyad year, which allows analyses of mutual behavior of two states with each other, for example, total trade or democracy between a pair of states. Directed-dyad years are common in the study of economic sanctions and are the appropriate unit from which to test our directed hypotheses.

20. Oneal and Russett's (1999) study gives full details of their model specification and their results; both manuscript and data are available online at http://www.yale.edu/unsy/democ/democ1.htm.

21. Data were collected by Emilie Hafner-Burton using sources from the World Trade Organization (Smith 2000; Schott 2003), among other sources. We would like to thank Ed Mansfield, John Oneal, Jon Pevehouse, and Bruce Russett for generously sharing their data. Additionally, we note that trade institutions exhibit a great deal of institutional variation. Ideally, any study comparing their effects on conflict would also include information about varying institutional qualities, such as dispute settlement mechanisms or security aims. Unfortunately, these data are simply not available for most trade institutions. Following Mansfield and Pevehouse (2000) and Oneal and Russett (1999), we consequently adopt the simplifying assumption that trade institutions can be analyzed as if they supply homogenous institutional qualities across agreements.

22. We thank Nikolay Marinov for providing us with our original dyadic version of the HSE data updated through 2000, including corrections from Dan Drezner; we have since extended it to include every case in the forthcoming third edition of the HSE book (Elliott et al. 2007).

23. Due to a lack of GDP data before 1950, lagging the data, and including GDP in every model, we effectively test the period 1951–2000.

24. King and Zeng (2001b, 2001a) have shown in the case of rare events that logit coefficients are commonly biased in substantively meaningful ways, even in large samples: estimated event probabilities are always too small. We correct for these biases accordingly. Since fixed-effects models are inappropriate for rare-events models (introducing a theoretical assumption that all-zero dyads tell us nothing about sanctions), we accordingly use rare-events logit instead. See King (2001) on rare events and fixed effects. Clustering by sender instead of by dyad resulted in similar results.

25. One case of double sanctions onset (U.S. sanctions on Peru, 68-1 and 68-2) is treated as a single onset. By splitting cases into multiple separate episodes and including actors discarded by HSE as per Drezner's (2000) and Marinov's (2003) recommendations, 15 cases are added to HSE's expanded list of 211 (dyadic) cases.

26. In the few cases where institutions were sanctioning its own members, we used the state with the second highest Composite Index of National Capability score; we used the same coding rules if sanctions targeted an institution.

27. U.S. domination of the data set may be due to many causes, which are dealt with elsewhere, such as the U.S. role in establishing and maintaining the international political and economic order and the ease of implementing sanctions (Carter 1987; Hafner-Burton and Montgomery 2008).

28. For the subset of matching dyads between our samples, our PTA_{ij} is highly correlated with their variable (~ 0.84).

29. Data measuring preferential trade agreement (PTA) integration are available only for a smaller sample of PTAs than the sample that we use for our analyses; while we observe more than 170,000 observations of joint membership in PTAs in our sample, the integration sample records just more than 120,000 observations. This difference in sample size makes comparison difficult. We thank Jon Pevehouse for generously sharing these data.

30. The term *nonreciprocal* refers to the structure of a trade agreement that offers one-way access of a state party to the negotiated market of another state or trading entity.

31. The goal of a free-trade area is to facilitate easier trading within the area. These agreements prohibit internal tariffs among members, although each member country keeps its own external tariff policies.

32. A customs union is a free-trade area with common external tariff policies on goods imported from countries outside the union.

33. A common market is a customs union with removal of restrictions on the free flow of capital, labor, and technology between members.

34. For additional research on international organizations and social networks, see Dorussen and Ward (2008 [this issue]) and von Stein (2008 [this issue]).

35. The correlation matrix is available in the appendix.

36. Correlation between $Trade_{ij-1}$ and $PTA_{ij-1} \times Trade_{ij-1}$ is high, inflating the associated standard errors reported in Table 1. We therefore run models 1 and 2 without $PTA_{ij-1} \times Trade_{ij-1}$ as well; our results are robust. Dyads linked by mutual ties to trade institutions are neither more nor less likely to sanction than other dyads.

37. In contrast to Hafner-Burton and Montgomery's (2006) research on intergovernmental organization (IGO) social networks and militarized disputes, we found that states were more likely to enact sanctions against other states in the same structurally equivalent cluster. This is consistent with a logic of competition among peers rather than a logic of in-group favoritism. Similarly, states that were highly central in the PTA network were more likely to enact sanctions, whereas for dyads in the IGO network, large differences in centrality tended to dampen militarized disputes. In both IGO and PTA networks, particularly large clusters tended to increase conflict (Hafner-Burton and Montgomery 2006).

38. We evaluate all variables in our base model (Table 1, column 1, excluding interaction terms) at their means, with the binary variables PTA_{ij-1}, $PTAClusterSame_{ij-1,}$ and $Allies_{ij-1}$ at their medians (zero in all three cases).

39. We thank Helen Milner for suggesting this possibility.

40. Additionally, we have limited our sample to Cox and Drury's (2006) sanctions-relevant dyads in order to ensure consistency, although as we have argued, we do not believe this sample is appropriate because sanctions do take place within nonrelevant dyads. Our substantive results on this reduced sample are identical. We have also replaced our binary PTA_{ij} variable with a continuous measure to see whether a greater number of mutual memberships in PTAs affects dyads' likelihood of sanctions and find no substantive change in our results. We have replaced our binary $Allies_{ij}$ variable with several binary measures to see whether formal mutual defense treaties, neutrality pacts, or ententes affect the likelihood of sanctions independently. We find no such evidence.

41. States in the EU are also more likely to sanction, although less so than the United States. When we included an EU sender dummy, our centrality results lost statistical significance due to the high correlation (0.75) between the two variables.

42. This premise stands in contrast to views that international organization have little effect on international relations between states (Mearsheimer, 1994/95).

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